

REMARKS/ARGUMENTS

Claims 1-2, 4, 14 and 21 have been amended and claims 3, 5-13, 15-20 and 22-27 remain unchanged. Thus, claims 1-27 are pending.

Claims 1-4 and 14-27 are rejected under 35 U.S.C. 112, second paragraph as being indefinite.

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka et al. in view of Takacs et al.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka et al. in view of Takacs et al.

As amended, all the pending claims of the subject application comply with all requirements of 35 U.S.C. Accordingly, Applicant requests examination and allowance of all pending claims.

Formal Matters

The Abstract has been amended to include 150 words or less, to satisfy the requirements of MPEP § 608.01(b).

Applicants thank the Examiner for indicating the allowability of claims 5-13. Applicants also thank the Examiner for indicating the allowability of claim 2, if rewritten to incorporate all the limitations of its base claim. Claim 2 has been rewritten to incorporate substantially all the limitations of claim 1 and is now believed to be allowable.

The Rejection Under 35 U.S.C. § 112

Applicants further thank the Examiner for indicating the allowability of claims 14-27, if rewritten to overcome the rejections under 35 U.S.C. § 112, second paragraph. The Examiner suggested changes for rewriting base claims 14 and 21. Claims 14 and 21 have been amended according to the Examiner's helpful suggestions, and are now allowable. Claims 15-20 and 22-27 depend from claims 14 and 21, respectively, and are now allowable as a result of the amendments to claims 14 and 21. Accordingly, claims 14-27 are in condition for allowance.

The Rejections Under 35 U.S.C. § 103(a)

Claims 1 and 3

Claim 1 has been amended to recite a an apparatus for positioning a sensing head relative to a workpiece, the apparatus comprising: "a control unit operative to provide a plurality of control signals to iteratively control positioning of the sensing head relative to the workpiece; a plurality of air injectors disposed and fixedly connected on a periphery of the sensing head, each of the air injectors capable of being independently controlled to eject a gas between the sensing head and the workpiece to create an air bearing and affect positioning of the sensing head relative to the workpiece in response to at least one of the control signals; and a plurality of sensors providing a plurality of feedback signals to the control unit, the feedback signals containing information relating to positioning of an optical imaging sensing head relative to the workpiece" (emphasis added).

Neither of the cited references U.S. Patent Nos. 6,285,102 (Matsuoka et al.) and 4,884,697 (Takacs et al.) teaches or suggests the apparatus of claim 1, as presently amended. Matsuoka et al. discloses the use of conventional air bearings in a negative pressure environment to lift a conveyer arm away from a base. Controlled air is delivered to an air bearing and ejected from a plurality of gas openings on the air bearing. There is no teaching or suggestion at all that the gas openings of such a conventional air bearing can be independently controlled. Takacs et al. discloses the use of conventional air bearings to provide lift for a linear air bearing slide. Again, there is no teaching or suggestion at all that gas openings of such a conventional air bearing can be independently controlled. As such, applicants believe that claim 1, as amended, overcomes the rejection under 35 U.S.C. 103(a), and is allowable over the cited references.

Claim 3 depends from claim 1 and incorporates all of the limitations of claim 1. Thus, claim 3 is also believed to be allowable, for at least the reasons stated above with respect to claim 1.

Claim 4

Applicants respectfully traverse the rejection of claim 4 under 35 U.S.C. § 103(a). As presently amended, claim 4 recites an apparatus for positioning a sensing head relative to a workpiece comprising: "a plurality of first air injectors fixedly connected with the sensing head; a plurality of second air injectors fixedly connected with the sensing head; a plurality of sensors providing a plurality of feedback signals, the feedback signals containing information relating to

positioning of the sensing head relative to the workpiece; and a control unit receiving the plurality of feedback signals from the sensors and controlling the first and second air injectors, the control unit capable of bringing positioning of the sensing head relative to the workpiece within a desired range by iteratively adjusting the first air injectors, the control unit being capable of adding an additional separation distance to positioning of the sensing head relative to the workpiece by operating the second air injectors" (emphasis added).

Matsuoka et al. fails to disclose a plurality of first air injectors fixedly connected with a sensing head and a plurality of second air injectors fixedly connected with the same sensing head. The portion of Matsuoka et al. cited by the Examiner (col. 11, lines 61 and col. 11, lines 63-64) disclose a first set of gas bearings attached to a conveyer arm in a closed space C1 and a second set of gas bearings attached to a rotational part in a separate closed space C2. By design, the conveyer arm and the rotational part are separate structures that are not connected to one another. In fact, they are separated by an air-tight, isolating wall labeled "W1" (see Fig. 12 of Matsuoka et al.). Clearly, the first and second set of air bearings disclosed in Matsuoka et al. are attached to separate structures, not the same structure. Thus, Matsuoka et al. fails to suggest, but in fact teaches away from, a "plurality of first air injectors fixedly connected with the sensing head" and "a plurality of second air injectors fixedly connected with the sensing head," as recited in claim 4.

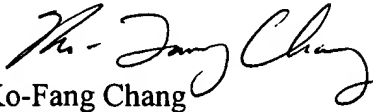
Furthermore, Takacs et al. does not make up for the deficiencies of Matsuoka et al. Consequently, the combination of Matsuoka et al. and Takacs et al. fail to teach or suggest the invention set forth in claim 4. Claim 4 is thus believed to be allowable over Matsuoka et al. and Tacaks et al.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,


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